Title
Eliminating disparities in diabetes care: The impact of disease management strategies within triad.

Permalink
https://escholarship.org/uc/item/0cq2p9d7

Journal
JOURNAL OF GENERAL INTERNAL MEDICINE, 20

ISSN
0884-8734

Authors
Duru, O
Mangione, CM
Karter, AJ
et al.

Publication Date
2005-04-01

Peer reviewed
Access to Care Measures among Stroke Survivors by Age (all p-values < 0.003)

<table>
<thead>
<tr>
<th>Access to Care Measure</th>
<th>Younger Stroke Survivors</th>
<th>Older Stroke Survivors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample n (weighted %)</td>
<td>Sample n (weighted %)</td>
<td></td>
</tr>
<tr>
<td>No health insurance</td>
<td>153 (11)</td>
<td>133 (0.4)</td>
</tr>
<tr>
<td>Inability to afford medications</td>
<td>194 (15)</td>
<td>152 (6)</td>
</tr>
<tr>
<td>No general doctor visit</td>
<td>167 (14)</td>
<td>202 (10)</td>
</tr>
<tr>
<td>No general doctor or specialist visit</td>
<td>101 (8)</td>
<td>135 (5)</td>
</tr>
</tbody>
</table>

**driving distance and Diabetes control**

**CONCLUSIONS:** Diabetes mellitus is one of the most common chronic diseases in America, affecting approximately 10% of the adult population. Despite advances in the treatment and control of diabetes, many barriers to good diabetic control remain. One potential barrier is the driving distance from a patient’s home to his or her site of care. Our goal in this study was to identify and describe the role that driving distance to site of care plays in glycemic control.

**METHODS:** We studied randomly selected adults enrolled in the Vermont Diabetes Information System (VDIS). All subjects had the diagnosis of diabetes confirmed on their Primary Care Provider (PCP) chart and participated in an in-person interview. Data collected included social and economic variables, home address, and duration of diabetes. Glycemic control was measured by recording a recent A1C. Using a geographic information system (ArcView 3.3), the addresses of these subjects and their PCPs were geo-coded (matched) to a commercially available geographic data set. A networking script was then used to determine the driving distance from each subject’s home to the PCP’s office. Subjects were broken into groups according to the driving distance: near (<5km from his or her PCP; n=274) or far (5 km or more; n=401). We used linear regression to estimate the effect of driving distance on glycemic control.

**RESULTS:** Subjects who lived within 5 km of their PCP had slightly better glycemic control (7.0 vs. 7.2; P=0.19 by t-test). Age was an important modifi-

**CONCLUSIONS:** driving distances are associated with poor glycemic control in diabetic seniors in this largely rural population. This may be due to increased mobility or sight, poor access to automobiles, or a number of other factors. Because many younger diabetics are employed and may travel from work to their PCP, our estimates in subjects under age 65 must be viewed with caution. While further investigation is needed, PCPs should be aware that driving distance represents a potential barrier to good diabetic control.

**EFFECT OF RACE, ETHNICITY AND SOCIOECONOMIC STATUS ON BONE DENSITY TESTING AFTER HIP FRACTURE**

**BACKGROUND:** Among potential risk factors for medication misunderstanding and medication errors is low health literacy. Low literacy has been linked to increased risk for hospitalization, poor diabetes control and worse outcomes for HIV care. Few studies have evaluated whether low health literacy puts patients at risk for nonadherence to medication and increased rates of adverse events. Even among patients who are given the known threat to patient safety posed by the use of medications, identifying risk factors for poor comprehension and incorrect use of medications is crucial. The Rapid Estimate of Adult Literacy in Medicine (REALM) is a 30-word oral reading test used in medical settings for a brief, simple test to predict health literacy. We conducted a pilot study to evaluate the predictive value of the REALM score for medication knowledge.

**METHODS:** Patients at an academic internal medicine clinic who had brought their medications to their visit who agreed to participate were surveyed regarding level of education, self-reported literacy level, and number of medications. They were then administered the REALM test as well as a survey of medication comprehension including what medications were taken, dose, indication of use, and known side effects for each of their medications. The answers on the medication comprehension survey were compiled into a medication comprehension “score” (MCS). RESULTS: A total of 72 patients were surveyed whereby a mean age of 61(range 27-90) mean years of school completed 9.7 (range 1-18). For self-reported literacy level, 88% reported being able to read and understand their medication.

**CONCLUSIONS:** This survey pilot study suggests that REALM score and last 30 years of schooling completed 9.7 (range 1-18). For self-reported literacy level, 88% reported being able to read and understand their medication. 90% mean years of schooling completed 9.7 (range 1-18). For self-reported literacy level, 88% reported being able to read and understand their medication. 90% mean years of schooling completed 9.7 (range 1-18). For self-reported literacy level, 88% reported being able to read and understand their medication.
differences were not observed within groups intensively implementing these two diabetes management strategies. In contrast, among persons with poor control, Latinos and Asian/Pacific Islanders received the same level of aggressive therapy as did whites.

CONCLUSIONS: In a setting of uniform access to care, process delivery and aggregate management of poor risk factors was comparable between Latinos and whites and Asians/Pacific Islanders and whites. However, in low-intensity groups disparities remained for American whites compared to whites, with some attenuation in the high-intensity groups. All minority groups had worse intermediate outcomes than whites, suggesting that disease management programs as presently implemented are not eliminating disparities in risk factors. Research identifying mutable factors closely related to intermediate outcomes in diabetes can provide strategies to address the issue of disparities in diabetes complications.

EXAMINING THE LINK BETWEEN COMMUNICATION AND MEDICATION ADHERENCE AMONG AFRICAN AMERICANS AND LATINOS: A Protocol; A. Brown1; D. Monsky1

BACKGROUND: Hypertension disproportionately affects minority populations in part due to different socio-cultural factors that affect adherence to antihypertensive drug therapies. In multicultural minority populations, issues dealing with patient communication may play a significant role because of linguistic and contextual barriers that inhibit effective provider-patient communication. In this study, we examine the relationship between provider-patient communication and medication adherence.

METHODS: We analyzed a cohort of 1,367 African American and Hispanic American (25%) adults who participated in the study at a large teaching hospital on the West Coast. Participants are representative of the surrounding, predominantly low-income minority community. The patients were randomly assigned to health providers, and received one of three types of intervention designed to enhance provider-patient communication: Individualized patient counseling sessions (CS) following clinic visits, computerized appointment (CAPT) reminder patient tracking within home visits by community health workers (CHW) to encourage family members to support patient’s management of lifestyle and medication adherence, or the usual care (UC). Patient adherence was measured at baseline and six months after the intervention using the Moteleys adherence measure, which is scaled from 1 (low) to 3 (high). We used multileveled order logistic models to evaluate the effects of the intervention on patient adherence, after adjusting for individual health beliefs, social support, patient satisfaction, complexity of medication regimen, BMI, age, baseline adherence and ethnicity.

RESULTS: After the intervention, patients who received counseling sessions (OR 1.07, 95% CI 1.02-1.12, P=.001) were more likely to adhere to their medication treatment. There was no significant difference between those who received computerized appointment reminders (OR .99, 95% CI .86-.15), (P=.34) and those who received the usual care. Patient adherence was also associated with health beliefs (OR 1.15, 95% CI 1.04-1.28, P=.003), patient satisfaction (OR 1.07, 95% CI 1.03-1.11, P=.04), and complexity of medication regimen (OR=.95, 95% CI .93-.98, P=.01).

CONCLUSIONS: In this randomized intervention study, African American and Latino patients who received personalized communication from health providers had higher adherence than those who received usual care. In this study, we examine the relationship between provider-patient communication and medication adherence. Further research should evaluate other behavioral, socioeconomic and biologic factors as mediators of ethnic differences in order to effectively develop interventions to eliminate disparities.

FACTORS MEDIATING ETHNIC DIFFERENCES IN GLYCEMIC AND CARDIOVASCULAR RISK FACTOR CONTROL IN DIABETES: L. H. Miller1; S. R. Lipsitz2; S. Natarajan1

BACKGROUND: Ethnic differences in cardiovascular risk factor levels and glycemic control persist in US adults with diabetes. While disparities have been demonstrated, little is known about what patient and system characteristics are responsible for these differences. Identifying patient and system characteristics that mediate these differences may be important to developing interventions that target these characteristics in order to ameliorate these disparities.

METHODS: We analyzed the 1999-2000 National Health and Nutrition Examination Survey to evaluate if hemoglobin A1c % (HbA1c) and cardiovascular risk factors such as systolic blood pressure (SBP), low-density lipoprotein (LDL) and high-density lipoprotein (HDL) cholesterol, and triglycerides (TG) varied by ethnicity. Ethnic category analyses were non-Hispanic whites (NHW), non-Hispanic blacks (NHB) and Mexican Americans (MA). Initially, multi-variant linear regression was used to test if HbA1c, SBP, LDL cholesterol, HDL cholesterol and TG were influenced by ethnicity. In a secondary analysis, we evaluated if education level, access to care, duration of diabetes and insulin use were responsible for the variation in cardiovascular risk factors and HbA1c among diabetics by R-square change analysis. All analysis incorporated the complex survey design effects to determine population estimates.

RESULTS: Significant ethnic differences were noted in HbA1c, HDL cholesterol and triglyceride levels. NHW had significantly lower HbA1c levels (7.48%) compared to NHB (8.31%) and MA (8.20%). In contrast, NHB had significantly higher HDL cholesterol (50.5 mg/dl) and lower TG (177.9 mg/dl) than NHW (HDL 42.4 mg/dl, TG 243.5 mg/dl) and MA (HDL 43.6 mg/dl, TG 311.9 mg/dl). Education level was the single largest determinant of variability in HbA1c (AR2 2.80, p < .05), with more modest effects (p < .05) of access to care (AR2 1.10), duration of diabetes (AR2 1.18) and use of insulin (AR2 1.62). Though the magnitude was small, significantly different race/ethnicity was responsible for the variation in SBP (AR2 change 0.27) and TG (AR2 1.69), and access to care for variation in LDL (AR2 0.05). None of these variables were significantly responsible for variability in HDL levels.

CONCLUSIONS: Ethnic differences between HbA1c, HDL cholesterol and TG levels continue in US adults with diabetes. Education level is the predominant characteristic mediating variability in HbA1c. In contrast, use of education may decrease ethnic differences in glycemic control. Future research should evaluate other behavioral, socioeconomic and biologic factors as mediators of ethnic differences in order to effectively develop interventions to eliminate disparities.

GOOD DOCTOR-PATIENT RELATIONSHIP CAN OVERCOME LANGUAGE BARRIERS: O. Nino-Mata1; D. Sokin2; R. S. Phillips; M. Massagi3; B. Clare4; S. Greenfield5; S. Kaplan6

BACKGROUND: Previous research has shown that language concordance between doctors and patients is related to higher patient satisfaction with care. To what degree, if any, can a good doctor-patient relationship overcome barriers imposed by doctor-patient language discordance? We sought to examine the independent effects of the quality of the doctor-patient relationship and language discordance on patients’ ratings of care.

METHODS: We surveyed 3,296 (74% response rate) Chinese and Vietnamese patients who had an office visit in the last month at one of 11 health centers across the U.S. In a mail survey in multiple languages, we asked patients to report on different aspects of their visit and to rate the quality of overall care. We studied patients whose doctors spoke their native language (concordant group) vs. those who did not (discordant group). We used patient-level multivariable logistic regressions to determine the effects of language concordance and the quality of the doctor-patient relationship on patients’ ratings of the quality of care (including rating of the overall quality of the last visit, rating of doctor, and recommendation of the clinic). We adjusted for patient demographic characteristics (including age, education, primary language, English proficiency, time in